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AF/1761

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Michael Smith et al.
Serial No:	09/309,396
Title:	HOP EXTRACT OF DEFINED COMPOSITION
Filing Date:	May 7, 1999
Group Art Unit:	1761
Examiner:	Curtis E. Sherrer
Docket No:	YC1.P07

M.S. Reply Brief - Patents
COMMISSIONER FOR PATENTS
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Date of Deposit: **October 29, 2004**

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1. **Second Appeal from the Primary Examiner to the Board of Patent Appeals and Interferences**
2. **Fee Authorization**
3. **Return Receipt Postcard**

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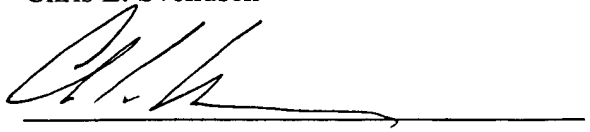
Chris E. Svendsen



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FEE AUTHORIZATION

Sirs:

The small entity appeal brief filing fee for this Second Appeal Brief is not required, because, per current USPTO regulations, (see comment 44, FR Volume 69, No. 155, page 49975, dated August 12, 2004.) This Brief is timely filed within the two month shortened statutory period via U.S. Express Mail, per 37 CFR §§1.7 and 1.10., as filed on Friday, October 29, 2004.

The Commissioner is authorized to charge payment of any fees under 37 CFR §§ 1.16 and 1.17 associated with this communication to Deposit Account 50-0269. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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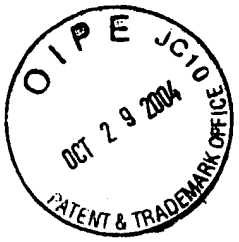

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
THE BOARD OF APPEALS AND INTERFERENCES

Applicants:	Michael Smith, David Diffor, and Robert Miller
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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Yakima, WA 98902
October 29, 2004

SECOND APPEAL BRIEF

Sirs:

The above listed Applicants, now Appellants, in regards to the above listed application for a non-provisional U.S. letters patent, hereby submits this Second Appeal Brief to the Board of Patent Appeals and Interferences, in response to the re-opening of prosecution and a final Office Action by the Primary Examiner. The Office Action is noted as mailed on May 28, 2004 and again, finally rejected claims 1, 2, and 12 through 16 of the application.

Originally, a Notice of Appeal for the above listed application was properly filed on September 10, 2002, with an Appeal Brief properly filed on November 12, 2002. In response, the Primary Examiner filed an Office action on May 9, 2003, modifying the pending rejections of the Final Office Action of May 10, 2002. On May 28, 2004, the Examiner again finally rejected claims 1, 2, and 12 through 16 of the application. On August 30, 2004, the Applicants timely filed a Notice of Appeal. This Second Appeal Brief is submitted in response to the May 28, 2004 Office Action, and is timely filed within the two month Appeal Brief filing period, after the filing of the Notice of Appeal.

REAL PARTY IN INTEREST

The real party in interest for the present, above listed mater is YAKIMA CHIEF INC., P.O. Box 209, Sunnyside, Washington, U.S.A., 98944. The above captioned Applicants have all assigned their ownership interests in the present application to this entity, as properly recorded with the USPTO, on December 20, 1999.

RELATED APPEALS AND INTERFERENCES

No other appeals or interferences are known to the Appellants' legal representative, which will directly affect or will be directly affected by or have bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1 and 2, and 12 through 16 are currently pending and are reproduced in Appendix I, attached hereto. Claims 3 through 11, and 17 through 19 stand as withdrawn from consideration by prior amendment of the Applicants. According to the 5/9/2003 Office Action, the remaining claims all stand rejected under 35 U.S.C. § 103(a), unpatentable over U.S. Patent No. 4,212,895 to Laws et al., or U.S. Patent No. 4,218,491 to Laws et al., in view of the Applicants' admissions.

STATUS OF AMENDMENTS

No amendment has been filed subsequent to final rejection.

SUMMARY OF INVENTION

The invention is directed to an enriched alpha-acid hop extract product formed from a carbon dioxide extraction of whole hops. The enriched alpha-acid hop extract product has a purified alpha acids component, which is formed from a refined portion of a whole hop extract. The enriched alpha-acid hop extracts of independent claims 1 and 13 have an alpha-acids concentration greater than 60% by weight, a total beta-acids concentration less than 20% by weight, and a total hop essential oils concentration in excess of 1% by weight.

Independent claim 1 is directed to an enriched alpha-acid hop extract. The total alpha-acids concentration of the enriched alpha-acid hop extract is supplemented, by the addition of purified alpha-acids. This and all claims are supported by the originally filed specification and drawings.

As stated, beginning on page 5, line 26 of the originally filed specification, "FIG. 1 shows this process schematically, with the raw hops **10** introduced into the CO_2 extractor **15**, to produce a whole hop extract." The whole hop extract is referred to as **20** in FIG. 1.

Page 7, beginning with line 17, again references FIG. 1 in disclosing that, ". . . the purified alpha-acid extract is preferably quickly utilized to supplement whole hop extracts **20** to form an alpha enriched extract **80**."

In the Applicants' Summary of Invention, beginning on page 4, line 26 the originally filed specification, best describes the resultant concentrations of alpha-acids, beta-acids and hop essential oils in the product as claimed: "This process produces an alpha enriched extract product having a total alpha-acids concentration greater than 60% by weight, a total beta-acids concentration less than 20%, by weight, and a total hop essential oils concentration in excess of 1% by weight."

Page 7, line 26 further supports the claim in stating, ". . . the second organic phase **65** is rich in beta-acids, and can be referred to as a beta-acids rich fraction. It contains substantially all of the beta-acids, hop oils and waxes present in the whole hop extract **20**, as refined in the first fractionation **35** and the second fractionation **55**." Page 4, line 23 adds that the enriched alpha-acids hop extract has ". . . a total hop essential oils concentration in excess of 1% by weight."

Independent claim 13 is directed to the enriched alpha-acid hop extract from a whole hop extract. The total alpha-acids concentration of the enriched alpha-acid hop extract is supplemented, by the addition of a purified alpha-acids from the whole hop extract. FIG. 1 shows this purification step as a First Fractionation **35**, which produces a First Aqueous Phase **45**, followed by an Alpha Acids Purification **50** to form Purified Alpha Acids **75** that are mixed and blended in a Whole

Extract Stream Mixing and Blending **85** to form the Alpha Enriched Extract **80**. The specification narrates this process, beginning on line 26 of page 5.

Dependent claims 2 and 12, are directed to further refinements of the product having the particular properties described in claim 1, above, or to further refinements of the purified alpha-acids employed in the process of the present invention.

The above refinements are discussed in the Applicants' specification, such as page 10, beginning on line 11, which discusses the use of more concentrated alpha-acids. FIG. 1 shows the use of a First KOH and Water **30**, and a Second KOH and Water **50**, in the fractionation of the Whole Hop Extract. The specification discusses the "alkali fractionation" on page 6, beginning on line 8.

Dependent claims 14 through 16, are directed to further refinements of the product having the particular properties described in claim 1, above, to further refinements of the purified alpha-acids employed in the process of the present invention, or mixing and storage features of the product.

Claims 14 and 15 are supported as discussed above in reference to claims 2 and 12. The recited storage features of the enriched alpha-acid hop extract product recited in Claim 16 are supported in the specification on page 9, beginning on line 5.

ISSUE

Are claims 1 and 2, and 12 through 16 unpatentable under 35 U.S.C. § 103 (a), over U.S. Patent No. 4,212,895 to Laws et al., or U.S. Patent No. 4,218,491 to Laws et al., in view of the Applicants' admissions, and further supported as unpatentable by the findings of *In re Levin*, 178 F.2d 945, 84 USPQ 232 (CCPA 1949) and *In re Geisler*, 116F.3d 1465 ,1469 43 USPQ2d 1362 (Fed. Cir. 1997).

GROUPING OF CLAIMS

Claims 1, 2 and 12 form a Group I, with respect to the issues set forth in the Issue, above. In particular, independent claim 1 recites a product that includes an additive of purified alpha-acids.

Dependent claims 2 and 12, add further refinements to the product of independent claim 1. The appealed claims are otherwise separately patentable over the cited references, as further discussed in the Argument section of this brief, set forth below.

Claims 13 through 16 form a Group II, with respect to the issues set forth in the Issue, above. In particular, independent claim 13 is directed to a product that includes an additive of purified alpha-acids formed from a refined portion of the whole hop extract.

Dependent claims 14 through 16, add further refinements to the product of independent claim 13. The appealed claims are otherwise separately patentable over the cited references, as further discussed in the Argument section of this brief, set forth below.

ARGUMENT

At issue is whether claims 1 and 2, and 12 through 16 are unpatentable under 35 U.S.C. § 103(a), over U.S. Patent No. 4,212,895 to Laws et al., or U.S. Patent No. 4,218,491 to Laws et al., in view of the Applicants' admissions, and whether this finding of unpatentability is further supported by the issues decided under *In re Levin* and *In re Geisler*.

Group I: Claims 1, 2 and 12 - Product Claims

Independent claim 1 recites an enriched carbon dioxide extracted hop extract product, in which a whole hop extract is supplemented by the addition of purified alpha-acids. The resultant alpha-acids concentration is greater than 60% by weight, a total beta-acids concentration less than 20% by weight, and a total hop essential oils concentration in excess of 1% by weight.

Claim 2 recites the limitations of claim 1, and adds the further limitation that the total alpha-acids concentration is approximately 70% by weight.

Claim 12 recites the limitations of claim 1, and adds the further limitation that the purified alpha-acids are formed from an alkali hydroxide fractionation of a whole hop extract.

A. Laws et al.

In regards to the above discussed claims of Group I, the Appellants primarily refer to the Examiner's Office Action of May 9, 2003, which again contains the reasoning for the rejection of

the claims in question. The cited claims are rejected under 35 U.S.C. § 103 (a), as being unpatentable over U.S. Patent No. 4,212,895 to Laws et al., or U.S. Patent No. 4,218,491 to Laws et al.

Regarding the two Laws et al. references, the Examiner underlines the contention that the two Laws et al. processes are not combined in the Examiner's rejection. The Examiner also adds that "clearly, the mixture of (Laws et al.) '895 and (Laws et al.) '491 compositions, for example 50/50, would produce the claimed product." The Examiner is conflicted as to the nature of his reasserted rejection, and the Appellants again assert that:

> **The Examiner's reliance on either Laws et al. reference fails, in that neither teaches nor suggests a properly comparable product, especially one having the claimed components in the required concentrations.**

Specifically, Laws et al. '491 teaches a CO_2 hop extract having the following typical composition (likely given in wt. %), as reported in the table beginning on line 15 of column 3, therein:

alpha-acids	40 to 75, usually 40 to 65
beta-acids	20 to 40, usually 25 to 35
total resins	70 to 98, usually 80 to 95
hop oil	up to 10, usually up to 3
water	up to 5, usually 2 to 5

Additionally, Laws et al. '491 fails to teach the blending, mixing or supplementing of this product with any other CO_2 extraction product.

On the other hand, the Laws et al. '895 reference relates to isomerization techniques, to convert alpha-acids into iso-alpha-acids. The Laws et al. '895 technique can employ the same CO_2 hop extract as Laws et al '491. Importantly, Laws et al. '895 fails to teach the blending, mixing or supplementing of this product with any other CO_2 extraction product. Most importantly, the mixing of an isomerized extract with a whole hop extract in a "50/50 mix," as suggested by the Examiner, can not result in the Appellants' claim.

The need for specificity is a pervasive theme in the analysis of obviousness under §103. "There must be a reason or suggestion in the art for selecting the [combination], other than the knowledge learned from the Applicant's disclosure." *In re Dow Chemical Co.*, 837 F.2nd 469,473, 5 U.S.P.Q.2d 1529 (Fed. Cir. 1988). "In determining whether a particular combination of prior art elements is taught or suggested, it is critical to consider "the particular *results* achieved by the new combination. . . ." *Interconnect Planning Corp v. Feil*, 744 F.2d 1132,1143,227 U.S.P.Q.2d 543 (Fed. Cir. 1985)(emphasis added). "Our case law makes clear that the best defense against the subtle but powerful attraction of a hind-sight based obviousness analysis is a rigorous application of the requirement for a showing of the teaching to combine prior art references." *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999).

The Examiner then adds that the Applicants' admit in their Background of the Invention (pages 1-4), that the prior art has commonly modified the various amounts of alpha acids, beta acids and oils that are added to beers. The Examiner has misread or misinterpreted the first four pages of the Applicants' specification. The Applicants' Background of the Invention instead asserts that the

manipulation of alpha acids and beta acids is an inexact practice. Specifically, on page 2, beginning a line 5; "Such a level of hop extract product control is currently unavailable."

The Examiner then asserts that; "It would have been obvious to those of ordinary skill in the art to modify these notoriously well known result effective variables, i.e., to modify the flavor of beer." However, there is nothing in the prior art of record that teaches dilution of purified hop extracts with whole hop extract to achieve a higher quality, consistent product having improved handling and storage characteristics. There is *no* motivation disclosed by either cited Laws et al. reference, coupled with the Applicants' background disclosures or the knowledge of those skilled in the pertinent arts, to combine a whole hop extract with a purified extract. Once a purified extract is obtained, conventional, common sense practice teaches away from then re-introducing such a refined product stream into a raw product stream.

In the Final Rejection of May 28, 2004, the Examiner adds that "Hildebrand" patent cites individual extracts are produced and then recombined to make a final product. The Appellant assumes this a reference to U.S. Patent No. 3,298,835 to Hildebrand et al. The Examiner failed to cite this reference in the initial rejection of May 9, 2003, and contrary to the Examiner's assertions, the Applicants discussed Hildebrand '835 in their original specification as employing unacceptable organic solvents, requiring extensive processing of the hop oil fraction and simply teaching the processing of the separated extract fractions, which are then reassembled in a hop concentrate final product. This final downstream product mixture of Hildebrand '835, can only be altered by varying the parameters in each specific processing step described therein. Once the process is optimized, the

Hildebrand '835 process produces a final product with much the same lot to lot variations as are found in the raw hops. A greater level of uniformity and product control is needed, especially a control that can be implemented by the extract processor, which takes into account the inherent variability of the raw hop material, to achieve a truly homogeneous hop extract product.

The Examiner additionally makes reference to "Sharpe" citing the teaching of fractions are created and recombined according to the particular need of the brewing company. The Appellant assumes this a reference to U.S. Patent No. 4,344,978 to Sharpe. The Examiner also failed to cite this reference in the initial rejection of May 9, 2003, and contrary to the Examiner's assertions, the Applicants discussed Sharpe '978 in their original specification as an early effort to apply the concept of fraction enrichment to CO_2 hop extract. Sharpe '978 fundamentally lacking in its ability to provide fixed component profile products on demand. Although Sharp '978 teaches that this process makes it possible to prepare fractions according to the particular need of brewing companies, a number of factors inherent in practical processing preclude this possibility. The Sharpe '978 method is sensitive to particle size of the hop grist extracted. As particle size varies, the retention time of each component is accordingly influenced. Also, as different hop varieties possess different component amounts and inter-component ratios, the processed fractional composition will be similarly affected. A consistent product component profile of alpha-acids, beta-acids and essential oils is a matter of constant process monitoring and an exact selection of fractions. The variable process of Sharp '978 is not capable of practically delivering a fixed profile product with consistency. Also, the component profile of the Sharp '978 extraction product, as finally recovered, provides a limited and fixed range of end use options. Sharp '978 does not allow for the obtaining

of a product with alpha-acids content above approximately 60% and a beta-acids content below 20%, while retaining a meaningful essential oil content. Hampered by intrinsic process limitations, Sharp '978 is constrained to product compositions dictated by the fractionation separations of the raw extract.

B. In re Levin

In regards to the above discussed claims of Group I, the Appellants again refer to the Examiner's Office Action of May 9, 2003, which contains the reasoning for the rejection of the claims in question. The cited claims are further rejected under 35 U.S.C. § 103 (a), with reference to *In re Levin*, 178 F.2d 945, 84 USPQ 232 (CCPA 1949) as "in point in the fact situation of the instant case."

***In re Levin* provides fails to provide an adequate basis for applying a *per se* rule that recipes are not patentable.**

The Examiner mistakenly applies a *per se* rule gleaned from *In re Levin* to assert that "recipes or formulas for cooking food which involve the addition or elimination of common ingredients" are not patentable. The Examiner is relying on fallacious reasoning to reject the Appellants' claims. As clearly stated in *In re Ochiai*, 71 F.3d 1565,37 USPQ2d 1127 (Fed.Cir. 1995) there are no *per se* rules when determining obviousness under 35 U.S.C. § 103 (a). The Examiner's administrative convenience in applying this "recipe rule" is inconstant with section 103, as properly interpreted in light of *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Being that the claims are

considered proper otherwise, the Appellants are entitled to issuance of their patent unless the PTO establishes that the invention as claimed is obvious over cited prior art, based on the specific comparison of that prior art with the limitations of the claims.

The Examiner states that *In re Levin* applies to the fact situation of the instant case. The Appellants disagree. Firstly, the highly specialized industrial practice of beer manufacture is not "cooking food." Most importantly, the Examiner is clearly erroneous in his assertion of obviousness. The advantages of a truly homogeneous, stable and economically advantageous bittering product are clearly described in the Applicants' specification. The prior art fails to teach the reintroduction of the refined extracted components, back into the extract, to yield a superior new bittering product, with unexpected stability.

C. In re Geisler

In regards to the above discussed claims of Group I, the Appellants now refer to the most recent Office Action of May 9, 2003, which contains the reasoning for the rejection of the claims in question. The cited claims are rejected under 35 U.S.C. § 103 (a), with reference to *In re Geisler*, 116F.3d 1465 ,1469 43 USPQ2d 1362 (Fed. Cir. 1997), the Examiner stating that ". . . a rejection is proper when a minor difference between the claimed invention and the prior art is a minor difference in the range or value of a particular variable or the ranges touch."

Again, the Appellants disagree with the Examiner's assertions. The Applicants have met the burden of showing that the claimed ranges are critical to the improvements realized. The cited prior

art is unable to produce the product of the claims. Furthermore, the claimed product is outside the ranges of the prior art, not an optimized variable range. Pages 9 and 10 of the Applicants' specification discusses the storage benefits of the enriched bittering product. As discussed therein, some of these properties were hoped for, but as with most chemical interactions, could not be assured and so were an unexpected benefit of the composition of the present invention. The Examiner makes a clear error by failing to address and properly consider the Applicants' cited benefits, thereby failing to meet the standards of review that the Examiner holds onto in *In re Geisler.*

Group II: Claims 13 through 16 - Product Claims

Claims 13 through 16 form a Group II with respect to the issues as set forth in regards to Group I, above. Claim 13 is considered by the Appellants as a variation in the product of claim 1, in that claim 1 does not require the supplemented component be derived from the same whole hop extract.

Independent claim 13 is directed to an enriched alpha-extract product that includes an additive of purified alpha-acids formed from a refined portion of the whole hop extract. The whole hop extract formed from a carbon dioxide solvent extraction. The resultant alpha-acids concentration of the enriched product is greater than 60% by weight, the total beta-acids concentration less than 20% by weight, and the total hop essential oils concentration in excess of 1% by weight.

Claim 14 recites the limitations of claim 13, and adds the further limitation that the total alpha-acids concentration of the product is approximately 70% by weight.

Claim 15 recites the limitations of claim 13, and adds the further limitation that the purified alpha-acids are formed from an alkali hydroxide fractionation of a whole hop extract.

Claim 16 recites the limitations of claim 13, and adds the further limitation that the second whole hop extract component be solvent free and is added to stabilize the purified alpha-acids component in storage.

A. Laws et al.

As in regards to the above discussion of claims of Group I, the cited claims of Group II are also rejected under 35 U.S.C. § 103 (a), as being unpatentable over U.S. Patent No. 4,212,895 to Laws et al., or U.S. Patent No. 4,218,491 to Laws et al.

In addition to the points presented in the above discussion, the Appellants insist that these two references, coupled with the knowledge of one of ordinary skill, as cited by the Examiner, is insufficient to establish a prima facie case of obviousness, with respect to the claims under appeal. See *In re Rijckaert*, 9 F.3d 1531,1532,28 USPQ2d 1955, 1956 (Fed. Cir. 1993). A prima facie case of obviousness is established by presenting evidence that would have led one of ordinary skill in the art to combine the relevant teachings of the references to arrive at the claimed invention. See *In re*

Litner, 458 F2d 1013,1016,173 USPQ 560,562 (CCPA 1972). The applied prior art does not suggest the claimed invention.

The applied prior art does not teach or suggest using mixing purified components to achieve a hybrid product having the benefits of a purified extract in a what was previously only a whole hop extract in form.

To supply the omissions in the teachings of the applied prior art, the Examiner made determinations (in the May 9, 2003 Office Action,) that the differences would have been an obvious choice to a person skilled in the pertinent art. However, this determination by the Examiner has not been supported by any evidence that would have led the skilled person to arrive at the claimed invention. The Appellants point to the originally filed specification as detailing the method of the processes, the previously unrealized advantages and benefits of the product and its significant potential for commercial success.

In the Office Action, the Examiner apparently asserts that the Laws et al. '491 patent and the Laws et al. ' 895 patent are interchangeable as references. However, these two patents by Laws et al. are not equivalent in their teaching relating to obviousness and the Applicants' claims. Laws et al. '895 deals with the production of isomerized alpha acids, while Laws et al. '491 later teaches an improved CO_2 extraction of hops. This is a glaringly clear distinction between these two patents and their teachings, to any person skilled in the art of hop extraction and processing.

The only suggestion for modifying either Laws et al. reference in the manner provided by the Examiner to include the addition of purified extract to whole hop extract in to product detailed in the Appellants' claimed formulation, stems from hindsight knowledge to support an obviousness rejection under § 103. Again, this assertion is impermissible, see *W.L. Gore and Associates, Inc. v. Garlock, Inc.*, 721 F. 2d 1540, 1553, 220 USPQ 303, 312-13)FED. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

The Examiner has misinterpreted and impermissively modified the Laws et al. references. The Federal Circuit in *In re Fritch*, 972 F.2d 1260, 23 USPQ 2d 1780,1783-84 (Fed. Cir 1992), (quoting *In re Fine*, 837 F. 2d 1071, 1075, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988), stated as follows:

> The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. . . . Here the Examiner relied upon hindsight to arrive at the determination of obviousness. It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to depreciate the claimed invention."

Nowhere do either of the Laws et al. references specifically suggest that a mixture of products, mixed back into the raw extract can be utilized, or be of any benefit. Those skilled in the art would not perform such an intuitively counterproductive step. Additionally, the Applicants' discussions in the Background of the Invention, support, rather than undermine this assertion.

The Appellants wish to again clarify that the Laws et al. patents compare CO_2 extraction products to prior art organic extraction products. The Applicants are not merely claiming a purified product, as offered by the Laws et al. references, but a mixture of two heretofore uncombined product streams.

The Examiner then asserts that; "It would have been obvious to those of ordinary skill in the art to modify these notoriously well known result effective variables, i.e., to modify the flavor of beer." However, there is nothing in the prior art of record that teaches dilution of purified hop extracts with whole hop extract to achieve a higher quality, consistent product having improved handling and storage characteristics. There is *no* motivation disclosed by either cited Laws et al. reference, coupled with the Applicants' background disclosures or the knowledge of those skilled in the pertinent arts, to combine a whole hop extract with a purified extract. Once a purified extract is obtained, conventional, common sense practice teaches away from then re-introducing such a refined product stream into a raw product stream.

In the Final Rejection of May 28, 2004, the Examiner adds that "Hildebrand" patent cites individual extracts are produced and then recombined to make a final product. The Appellant assumes this a reference to U.S. Patent No. 3,298,835 to Hildebrand et al. The Examiner failed to cite this reference in the initial rejection of May 9, 2003, and contrary to the Examiner's assertions, the Applicants discussed Hildebrand '835 in their original specification as employing unacceptable organic solvents, requiring extensive processing of the hop oil fraction and simply teaching the processing of the separated extract fractions, which are then reassembled in a hop concentrate final

product. This final downstream product mixture of Hildebrand '835, can only be altered by varying the parameters in each specific processing step described therein. Once the process is optimized, the Hildebrand '835 process produces a final product with much the same lot to lot variations as are found in the raw hops. A greater level of uniformity and product control is needed, especially a control that can be implemented by the extract processor, which takes into account the inherent variability of the raw hop material, to achieve a truly homogeneous hop extract product.

The Examiner additionally makes reference to "Sharpe" citing the teaching of fractions are created and recombined according to the particular need of the brewing company. The Appellant assumes this a reference to U.S. Patent No. 4,344,978 to Sharpe. The Examiner also failed to cite this reference in the initial rejection of May 9, 2003, and contrary to the Examiner's assertions, the Applicants discussed Sharpe '978 in their original specification as an early effort to apply the concept of fraction enrichment to CO_2 hop extract. Sharpe '978 fundamentally lacking in its ability to provide fixed component profile products on demand. Although Sharp '978 teaches that this process makes it possible to prepare fractions according to the particular need of brewing companies, a number of factors inherent in practical processing preclude this possibility. The Sharpe '978 method is sensitive to particle size of the hop grist extracted. As particle size varies, the retention time of each component is accordingly influenced. Also, as different hop varieties possess different component amounts and inter-component ratios, the processed fractional composition will be similarly affected. A consistent product component profile of alpha-acids, beta-acids and essential oils is a matter of constant process monitoring and an exact selection of fractions. The variable process of Sharp '978 is not capable of practically delivering a fixed profile product with

consistency. Also, the component profile of the Sharp '978 extraction product, as finally recovered, provides a limited and fixed range of end use options. Sharp '978 does not allow for the obtaining of a product with alpha-acids content above approximately 60% and a beta-acids content below 20%, while retaining a meaningful essential oil content. Hampered by intrinsic process limitations, Sharp '978 is constrained to product compositions dictated by the fractionation separations of the raw extract.

B. In re Levin

As stated above in regards to the claims of Group I, the Examiner then cites *In re Levin*, 178 F.2d 945, 84 USPQ 232 (CCPA 1949), in maintaining his rejection of the claims, including those of Group II. The Appellants' product is not a recipe or formula that with simple variation in a component. The Applicants have developed a new and materially different intermixture exhibiting properties that the separate ingredients do not individually possess.

The proportions claimed are critical in realizing these properties. The compounding procedure is unusual in that it recombines product streams that are not recombined in that the industry practice teaches away from such recombination. Mass produced beverages are certainly required to be consistent in quality and taste. Homogeneity and precision in the hop extract industry is vital in the production of consistent product. The Appellants respectfully request to reconsider the utility of their claims, as they are made in the highly competitive and intensely researched field of hop derived products.

Although it is known to purify hop extract, it is not known to recombine purified extract into the whole hop extract. One skilled in the art would certainly avoid the Appellants' process, labeling it counterproductive. At best, a blended product so produced, would be expected to perform no better than the whole extract prior to enrichment. The unforseen advantages of this whole extract enrichment include the stabilization of the product and the consistent homogeneity in the product that is afforded by the re-introduction of specific purified steams back into the whole hop extract. As noted by the Appellants in their originally filed specification (beginning on page 9, line 28 therein), the blended formulation also unexpectedly exhibits a better consistency for pouring and flow, when compared to either the whole extract or purified components. This is a new, unexpected and very useful function.

C. In re Geisler

As stated above in regards to the claims of Group I, the Examiner finally cites *In re Geisler*, 116F.3d 1465 ,1469 43 USPQ2d 1362 (Fed. Cir. 1997), in maintaining his rejection of the claims, including those of Group II, the Examiner stating that ". . . a rejection is proper when a minor difference between the claimed invention and the prior art is a minor difference in the range or value of a particular variable or the ranges touch."

Again, the Appellants disagree with the Examiner's assertions. The Applicants have met the burden of showing that the claimed ranges are critical to the improvements realized. The cited prior art is unable to produce the product of the claims. Furthermore, the claimed product is outside the ranges of the prior art, not an optimized variable range. Pages 9 and 10 of the Applicants'

specification discusses the storage benefits of the enriched bittering product. As discussed therein, some of these properties were hoped for, but as with most chemical interactions, could not be assured and so were an unexpected benefit of the composition of the present invention. The Examiner makes a clear error by failing to address and properly consider the Applicants' cited benefits, thereby failing to meet the standards of review that the Examiner holds onto in *In re Geisler.*

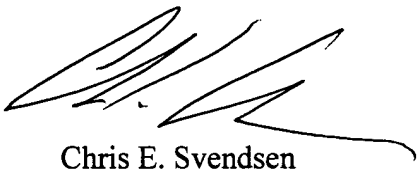
CONCLUSION

Therefore, in view of the above arguments and citations, the Appellants requests the Board to reverse the rejections of claims 1, 2 and 12 through 16, as the Examiner has failed to make a *prima facie* case of obviousness. The Applicants' own "admissions" do not lend to the Examiner's assertion of unpatentability. Additionally, the Appellants contend that the Examiner's rejection in the present case is not properly supported by *In re Levin*, nor *In re Geisler*.

Furthermore, the Examiner failed to advise the Appellants of their option to request reinstatement of the appeal after a reopening of prosecution, per the form paragraph 12.81 suggested in MPEP § 1208.02. The Appellants are indeed puzzled by the "modifications of pending rejections," now put forward by the Examiner. The present claim rejections are all presented in prior actions *verbatim*. Specifically, a quick cut and paste combination of Examiner's Paper No. 6 (dated 6/30/2000), and Examiner's Paper No. 13 (dated 9/21/2001), equate to the Examiner's present arguments. The current rejection is not new, and therefore not a valid "new ground of rejection," as required for reopening of prosecution. The Examiner cites a new ground of rejection being the

Applicants' own admissions in the originally filed specification. This assertion by the Examiner could not have been the result of a new search of prior art, nor is it based upon any newly uncovered references. The Appellants continue to be concerned with this apparently frivolous extension of prosecution and delay, wasting time and resources, as initiated by the Office Action of May 9, 2003, and the Final Rejection of May 28, 2004. Therefore, the Appellants again, respectfully traverse the Examiners rejections, and per MPEP § 1208.02, **request reinstatement of the original appeal.** This request is properly accompanied herein, by this Appeal Brief, per 37 CFR 1.193(b)(2).

Respectfully submitted,
Stratton Ballew PLLC



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CLAIMS APPENDIX

The following is claimed:

1. An enriched alpha-acid hop extract product formed from a carbon dioxide extraction of whole hops, the enriched alpha-acid hop extract product having:

an alpha-acids concentration supplemented by the addition of purified alpha-acids, the resultant alpha-acids concentration greater than 60% by weight;

a total beta-acids concentration of less than 20% by weight; and

a total hop essential oils concentration in excess of 1% by weight.

2. The enriched alpha-acid hop extract product of claim 1, wherein the total alpha-acids concentration is approximately 70% by weight.

12. The enriched alpha-acid hop extract product of claim 1, wherein the purified alpha-acids are formed from an alkali hydroxide fractionation of a whole hop extract.

13. An enriched alpha-acid hop extract product having:

a whole hop extract component produced by a carbon dioxide solvent extraction, the whole hop extract component including alpha-acids, beta acids and hop essential oils, hard resins and waxes;

a purified alpha acids component formed from a refined portion of the whole hop extract component; and

the enriched alpha-acid hop extract having a total alpha-acids concentration greater than 60% by weight, a total beta-acids concentration less than 20% by weight, and a total hop essential oils concentration in excess of 1% by weight.

14. The enriched alpha-acid hop extract product of claim 13, wherein the enriched alpha-acid hop extract product has a total alpha-acids concentration of approximately 70% by weight.

15. The enriched alpha-acid hop extract product of claim 13, wherein the purified alpha-acids are formed from an alkali hydroxide fractionation of the whole hop extract.

16. The enriched alpha-acid hop extract product of claim 13, wherein:

the whole hop extract is a first whole hop extract;

the second whole hop extract component is an organic solvent free, second whole hop extract component; and

the purified alpha acids component stabilized in storage by the first whole hop extract component.